



In this issue:

Heat: The Silent Killer 1

Heat Safety Tips 2

COOP Observer News 3

NWS Student Volunteers 4

La Niña Begins 4

Spring Climate Statistics 4

AHPS News 5

Climate Outlooks 7

Central Illinois Lincoln Logs

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Heat: The Silent Killer

By: Chris Miller, Warning Coordination Meteorologist

An old song goes “Summertime and the livin’ is easy...”. Summer is the season when many people spend time outside relaxing, vacationing, playing, or tackling that long awaited outdoor project. However, the warm temperatures and humid air of the summer can be deadly if precautions are not taken.

Hot and humid weather does not make a “loud entrance” like many of the severe storms, tornadoes and floods that impact us. That is why it is called the “Silent Killer”. In fact, most people take the heat for granted because in many Illinois summers it is not out of the norm to have several hot and humid days. This is how heat related illnesses and fatalities sneak up on people and take their toll.

Each year in the United States, an average of 162 people die from heat related disorders. This is more than fatalities from floods, lightning and tornadoes combined. Many of the heat related deaths in the United States occur right here in Illinois. In fact, since 1995, 40% of all the national heat related fatalities have been reported in Illinois. The state has had nearly 1,000 fatalities because of heat since early 1995 - which is five times more than all of the fatalities from floods, high wind, lightning, severe thunderstorms, tornadoes and cold weather combined.

Men in the 60 to 89 age range account for the greatest majority of heat related fatalities statewide - around 60%. Children are also a high risk group on warm or hot days, especially those left in automobiles. Experiments have shown that when the outside temperature is as low as 80°F the interior of an enclosed vehicle can heat up to nearly 110°F in 20 minutes, and up to 125°F in 60 minutes. During a typical summer in central or eastern Illinois, temperatures reach 80°F nearly every day! The same applies to pets left in automobiles, but the impact on the animal can be quicker due to the type of animal and amount of hair or fur.

The National Weather Service uses the “Heat Index” to describe how our bodies “feel” the effects of the combination of heat and humidity. The following charts show two ways of looking at the heat index: Temperature and Relative Humidity OR Temperature and Dew Point.

Weather Event - Illinois	Fatalities (since 1995)
Extreme Heat	963
Extreme Cold	115
Flooding	23
Tornadoes	21
Lightning	15
T-storm Wind	12
High Wind (not from a T-storm)	9

continued on next page



Tips for Staying Safe in the Heat:

- NEVER leave children or pets alone in enclosed vehicles!
- Stay hydrated by drinking plenty of water – even if you are not thirsty.
- Avoid drinks with caffeine or alcohol (these actually dehydrate your body).
- Eat small meals and eat more often.
- Wear light weight, loose fitting, light colored clothing.
- Take frequent breaks in air conditioned or fan-cooled rooms.
- Check on farm animals frequently and make sure they have plenty of water.
- Use a buddy system when working in excessive heat, since dizziness and confusion are symptoms of heat stroke, and you may not notice these conditions yourself.
- Check on family, friends, and neighbors who do not have air conditioning, especially the elderly and people with medical conditions.
- Stay informed by keeping up with the latest weather forecasts and current conditions.

Heat: The Silent Killer (cont.)

		HEAT INDEX VALUES															
		RELATIVE HUMIDITY (%)															
T(F)		20	30	35	40	45	50	55	60	70	80	90					
75		71	72	73	73	74	74	75	75	76	77	78					
80		79	79	80	80	80	81	81	82	83	84	86					
85		82	83	84	84	85	87	88	89	93	97	102					
90		86	88	89	91	93	95	97	100	106	113	122					
95		92	94	97	99	102	105	109	113	123	134	147					
100		98	102	106	109	114	118	124	130	143	158						
105		104	112	116	122	127	134	141	149	166							
110		112	122	129	136	143	152	161	171								
115		121	135	143	152	162	173	184									
120		130	148	159	170	182	196										
125		140	163	176	190	205											
130		151	179	195	212												

		HEAT INDEX VALUES															
		DEWPOINTS (F)															
T(F)		35	40	45	50	55	60	65	70	75	80	85					
75		76	77	77	78	78	79	78	77	75							
80		79	79	79	80	80	81	82	83	85	87						
85		82	82	82	83	84	85	87	90	93	99	107					
90		86	86	86	87	88	90	92	96	100	107	117					
95		90	91	91	92	93	95	97	101	107	115	126					
100		95	95	96	97	98	101	104	108	114	121	132					
105		99	100	101	102	104	106	109	114	120	129	140					
110		104	104	105	107	109	112	115	120	126	134	145					
115		107	108	110	112	114	117	121	126	133	141	152					
120		111	112	113	116	118	122	125	132	138	146	156					
125		114	115	117	120	123	127	130	136	142	151	163					
130		116	117	119	123	125	130	134	141	149	156	168					

Values in yellow indicate the “caution” should be used outdoors, orange values indicate a “dangerous” condition outdoors for heat stroke, and red values indicate “extreme danger” for heat stroke.

Heat-related illnesses range from heat cramps to the potentially life-threatening heat stroke. Symptoms and recommends treatment actions include:

- **Heat Cramps:** Twitching or painful spasms, usually in muscles of legs or abdomen during or after heavy physical activity, as well as heavy sweating and thirst. Treatment includes stopping activity and resting in a cool place. Lightly stretch or gently massage muscles to relieve spasms, and give sips of cool water or electrolyte drink to the sufferer.
- **Heat Exhaustion:** Heavy sweating, with cool, pale and clammy skin. Pulse is fast and weak and breathing is fast and shallow. Victim will have normal temperature or a low-grade fever. Fainting, vomiting, dizziness, nausea and headache are common. Treatment includes having the victim lie down in a cool place. Apply cool, wet cloths and give sips of cool water or electrolyte drink. Contact doctor if symptoms worsen or do not improve within 30 minutes.
- **Heat Stroke:** High body temperature of 103 -106° F. Victim will have hot, red, dry skin, and sweating may be heavy or have stopped. Breathing is fast and shallow, and other symptoms include headache, nausea, dizziness and confusion, with possible unconsciousness or seizure. Heat stroke is a life-threatening medical situation requiring immediate emergency medical treatment.

The NWS in Lincoln will issue heat warnings and advisories as necessary, based on the following criteria:

- **Excessive Heat Warning:** Maximum heat index of 105° F or higher and a minimum heat index of 75° F, for at least 48 hours. A warning may also be issued if a heat index of 100° F is expected for at least 4 days.
- **Heat Advisory:** Maximum heat index of 100 to 105° F. An advisory may also be issued if a heat index of 95 to 100° F is expected for at least 4 consecutive days.



COOP Observers Pass Away:

Longtime Ste. Marie COOP observer Ben Kocher passed away at his home on May 21. Ben took observations for the Ste. Marie area for 25 years, beginning in 1985.



Additionally, former Windsor observer Roger Morrison passed away on June 10 in St. Louis. Roger and his wife Rosemary recorded the weather at Windsor from 2004 to 2009.



The staff of the Lincoln NWS extends its sympathy to the families of Ben and Roger.

Weather Observers Needed

By: Billy Ousley, Data Acquisition Program Manager

The Cooperative Observer Program is a network of volunteer weather observers that take and record temperature, precipitation (rainfall, snowfall, and snow depth), and sometimes river stage readings, vital to the climatology of a community, state, and the country. Across the country, the data provided by these dedicated individuals is critical to the mission of the NWS.

We currently need observers in the following locations:

- Calhoun
- Chillicothe
- Lewistown
- Lexington
- Mahomet
- Monticello
- Pekin
- Riverton
- Ste. Marie
- Washington

It is important for us to find observers in the underlined locations above!

If you are interested in helping us out, please call us at 217-732-3089 weekdays between 8:30 am and 4 pm, or send an E-mail to billy.ousley@noaa.gov

2010 Holm Award Winner

Our office can share in the knowledge that our Petersburg observer Mary Ortgesen is a 2010 Holm Award winner. Out of a pool of a few hundred applicants nominated by local WFOs her packet was one that stood out.

"Mary Ortgesen: For your outstanding service in reporting precipitation and river levels from Petersburg, Illinois, for over 25 years, the John Campanius Holm award is to be presented to you. Your observations are a valuable resource for the National Weather Service to help protect lives and property through timely flood warnings."

We are very appreciative of the efforts on the part of Mary as it takes a quality Coop Observer fully dedicated to service to the community to be not only nominated but to win this prestigious award, which is one of the two most prestigious awards the NWS bestows to its volunteer observers.

Planning for the award presentation and ceremony will begin soon.

Spring Climate Statistics:

Peoria:

- 2nd warmest spring on record
- Average temperature 55.6°F (4.6°F above normal)
- 14.81" of precipitation (4.25" above normal)
- 0.9" of snow (3.3" below normal)

Springfield:

- Tied for 3rd warmest spring on record
- Average temperature 57.4°F (4.7°F above normal)
- 14.50" of precipitation (3.93" above normal)
- No snow (4.1" below normal)

Lincoln:

- Tied for 9th warmest spring on record
- Average temperature 54.7°F (3.9°F above normal)
- 9.98" of precipitation (1.18" below normal)
- No snow (2.7" below normal)

2010 Summer Volunteers



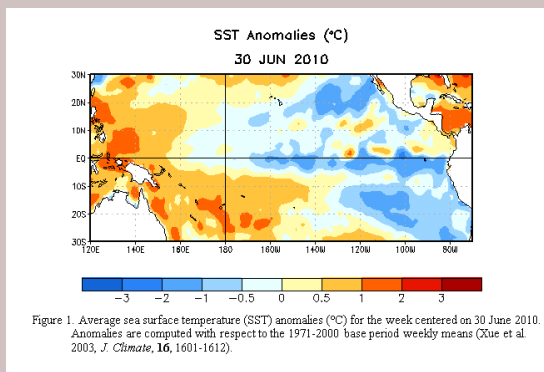
Hi, my name is Eric Ahasic and I am a junior at the University of Illinois studying atmospheric science. I'm from Champaign, IL and have been fascinated by the weather ever since the April 19, 1996 tornado outbreak where numerous damaging tornadoes touched down across Central Illinois. This summer I have worked at the National Weather Service launching weather balloons, writing forecasts, and my personal favorite... getting firsthand experience with severe weather operations. I am also working on a project researching the June 5, 2010 tornadoes in Abingdon, Elmwood, and Peoria.

My name is Kurtis Malone. I am currently a student at Valparaiso University, and will graduate in the spring of 2011 with a major in meteorology and minors in both mathematics and communications. During my first year in school I was the winner of the Navel Weather Service Scholarship. Last summer, I had an internship with WMBD-TV in Peoria, IL, with Chief Meteorologist Chuck Collins. During the last spring semester, I took a course with Ginger Zee of NBC-5 Chicago learn the business of broadcast meteorology. Upon returning to school this fall I will start as a dynamics lab assistant. I plan on continuing my education by going to graduate school with a concentration in tropical cyclones.



La Niña Watch Issued

La Niña conditions have begun to develop across the equatorial Pacific Ocean. A La Niña is an area of below normal sea surface temperatures.



Information on La Niña is available at

http://www.pmel.noaa.gov/tao/el_nino/la-nina-story.html

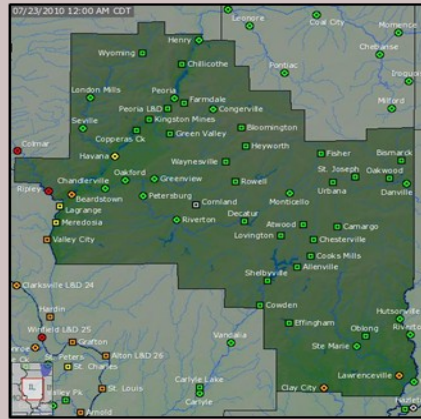
Getting to AHPS pages:

There are a few ways you can get to the AHPS river pages from our homepage (www.weather.gov/lincoln):

- In the row of tabs above the map, near the top of the page, click on the “Rivers & Lakes” tab.
- In the menu along the left side of the screen, click on the “Rivers & Lakes” link in the “Hydrology” section of the menu (about halfway down the menu list)

Changes to AHPS River Pages

By: Darrin Hansing, Service Hydrologist



Users of the Central Illinois Advanced Hydrologic Prediction Service (AHPS) page may have noticed a few changes recently, in the form of more river gaging locations being displayed on our AHPS map. The Q&A section below is intended to help answer some of the questions that you may have on these changes.

Are these river gaging locations new?

For the most part the answer is no. Except for a couple new locations not yet displayed on AHPS...all of these river gages have been around for some time.

Who owns the river gages displayed on AHPS?

Depending on the gage, they are either operated and maintained by the U.S. Geological Survey and/or the U.S. Army Corps of Engineers. Some of the costs of maintaining these gages are also shared among local partners that have an interest in obtaining river gaging information for a particular area.

What is the significance of these locations?

These newly displayed locations are all considered “data points”. These are locations from which we collect river gaging data which is utilized in generating some of the forecasts for our river “forecast points”.

What is the difference between a “forecast point” and a “data point”?

Forecast points are typically higher impact locations for which the National Weather Service will generate forecasts and warnings when rivers are expected to rise above a particular level. This is done to alert the public of the potential threats that come with rising river water levels.

As stated above, streamflow information from data points is utilized in the generation of forecasts for the forecast points. They are also a tool that is utilized in assessing the need for areal flood and flash flood warnings across central and southeast Illinois during heavy rain events. It is important to note that data points can be changed into permanent forecast points if there is a need for that kind of information for that location.

Like the Information from forecast points, data points provide needed information to the public, Emergency Management, local agencies, companies, media, etc on the current state of the rivers across central and southeast Illinois.

How can I tell the difference between the two types on the AHPS map?

Distinguishing between the two is very simple. Locations with a ● are all forecast points. Locations with a ■ are all “data points”.

(cont. on next page)

Definitions of Flood Categories:

Minor Flood — Minimal or no property damage, but possibly some public threat.

Moderate Flood — Some inundations or structures and roads near the river/stream. Some evacuations needed and transfer of property to higher ground.

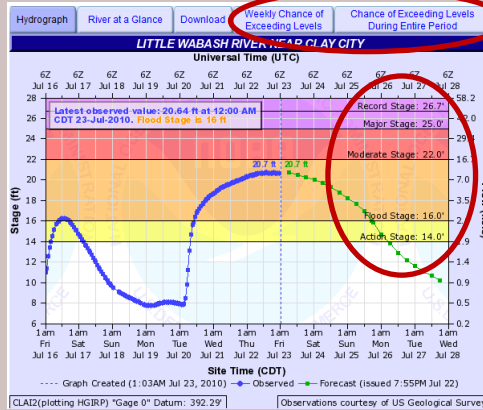
Major Flood — Extensive inundations or structures and roads. Significant evacuations of people and transfer of property to higher ground.

Record Flood — Flooding which equals or exceeds the highest stage observed at a given site during its period of record. The highest stage on record is not necessarily above the other 3 flood categories.

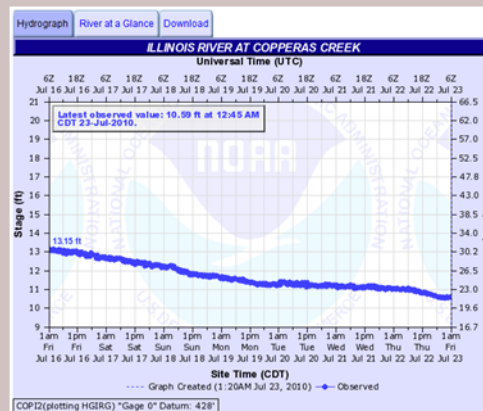
Source: NWS
Instruction 10-950,
dated 9/8/2008

Changes to AHPS River Pages (cont.)

What are some of the differences in available information that I will see when clicking on a data point versus a forecast point?



Forecast point graph with two extra tabs (above), versus data point graphs below



There are going to be many differences in the displayed information from these two types of points:

- All of the forecast points have flood categories (minor/moderate/major) associated with a specific river stage at that location. However, most of our data points do not yet have all of these categories defined.
- Forecast points will also have exceedance probability information for each location, whereas data points do not.
- Forecast points all have some sort of specific damage impacts linked to particular stages. Our river data points do not, as of yet, have many impacts defined.

- Historical crest information available for our forecast points is currently more complete on AHPS than for our data points. This information will however, be added over time.

On the AHPS map, why do the forecast points change color and most of the data points do not?

The color change is based on the observed river stages. If a location exceeds either minor, moderate, or major flooding then they will turn color to reflect the flood category in which they are in. Since most of the data points do not yet have these categories defined, they will stay green even though river levels may be quite high in that area.

We hope that you find these changes to our AHPS page useful. Over time you will see more information added to not only our data point pages, but also to our forecast point pages. If you have any questions about AHPS or the river gaging locations across central and southeast Illinois, then please contact Darrin Hansing, Service Hydrologist, at darrin.hansing@noaa.gov.



Central Illinois Lincoln Logs

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(8:30 am to 4 pm)

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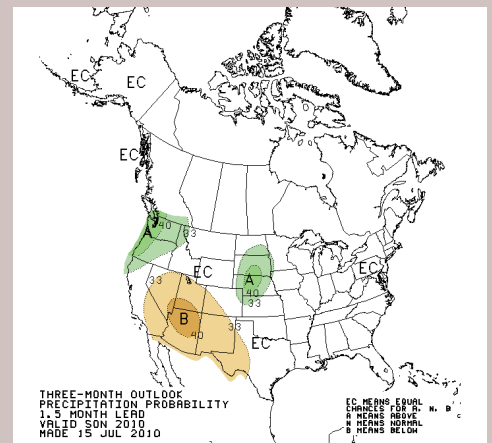
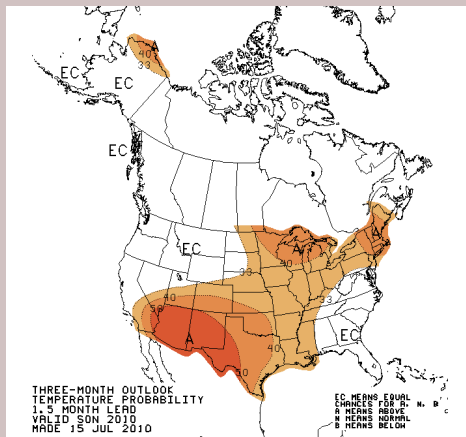
www.weather.gov/lincoln

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Seasonal Climate Outlooks

Here are the outlooks for the U.S. for the coming seasons. These were issued by the Climate Prediction Center on July 15.

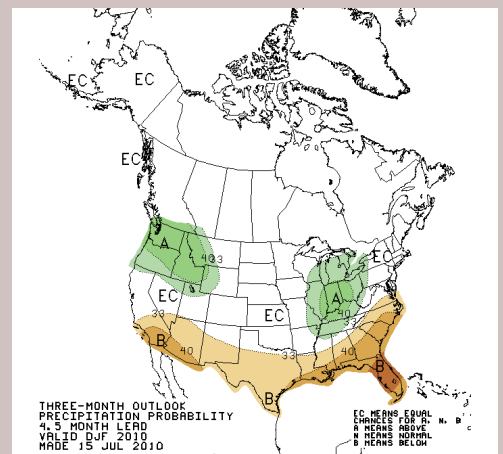
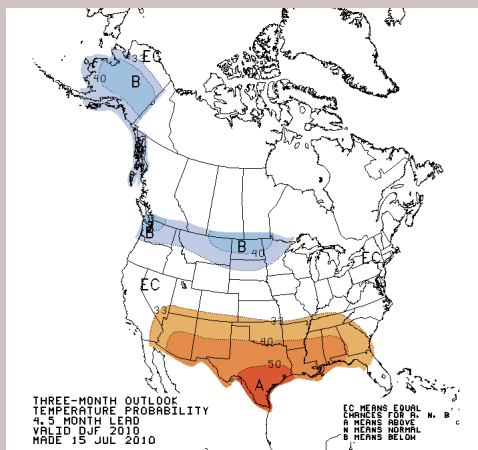
Autumn (September through November):



Temperatures (left image) are expected to be above normal across much of the country (orange and red shades). The exception is the Pacific Northwest, the northern Rockies, and the mid Atlantic through the southeast U.S., where no clear trend is indicated.

Precipitation (right image) is expected to be above normal (green shades) across the Pacific Northwest and the Northern Plains, and below normal (brown shades) across the Southwest U.S. and the southern Rockies. No trend is indicated across the remainder of the country.

Winter (December through February):



Temperatures (left image) are expected to be above normal (orange shades) across the southern U.S., and below normal (blue shades) in the far north.

Precipitation (right image) is expected to be above normal (green shades) across the Pacific Northwest and the Midwest, and below normal (brown shades) across the southern states.